Unit 1 Test Review   Name: _____

Solve using dimensional analysis:

1. Water weighs about 4.17 ounces per cup. How many pounds per gallon is this?

2. Lorenzo rides his bike at a rate of 2.2 meters per second. About how many miles per hour can Lorenzo ride his bike?

3. Which of the following is growing at the fastest rate?

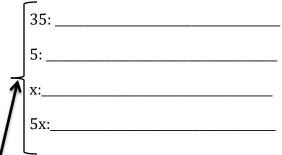| Corn: 9 inches/month	Carrot: 0.8 cm/day	Cucumber: 0.0003 m/hour

4. In the 2000 Summer Olympics in Sydney, Australia, Maurice Green of the US won the gold medal for the 100-meter sprint. His winning time was 9.87 seconds. What was his speed in kilometers per hour? *Round to the nearest tenths place.*

Answer the questions below each given scenarios:

5. Kenji is saving money to buy a new bicycle that costs $125. So far he has decided to save his weekly allowance of $5 and he has already saved $35 from his birthday money. How many weeks will Kenji have to wait until he can buy his bike?

$$125 = 5x + 35$$

35: _____

a. What does the 5x represent in the context of the problem?

5: _____

x:_____

b. What does the 35 represent in the context of the problem?

5x:_____

c. Give the appropriate vocabulary word for each of the following:

6. Before school started, I went to Staples with $25 to grab some supplies for my classroom. I needed some pens, some notebooks, and a stapler. I found the stapler I wanted for $12.50.

$$12.50 + 1.50p + 0.65n \leq 25$$

a. What vocabulary term does the *n* represent? _____

b. What vocabulary term does the 12.50 represent? _____

c. What vocabulary term does the 1.50 represent? _____

d. What vocabulary term does the 0.65n represent? _____

e. In context of the problem, what does the 0.65 represent? _____

f. In context of the problem, what does the 12.50 represent? _____

g. In context of the problem, what does the *p* represent? _____

h. In context of the problem, what does the 0.65n represent? _____

i. In context of the problem, what does the 25 represent? _____

j. Why did I use an inequality sign for this problem instead of an equal sign?

Solve the inequality or equation. Justify each step with the correct property.

7. $-9(x + 3) = -2 - 4x$

8. $-4(4 - 3x) \leq 2(9 + 5x)$

9. $-4x + 2(5x - 6) = -3x - 39$

10. $-10x + 3(8 + 8x) > -6(x - 4)$

11. Rufus has collected 100 pounds of cans for the student hunger drive. He plans to collect an additional 25 pounds each week. He has a goal of collecting at least 400 pounds by the end.
    a. Write an equation/inequality that models the situation.

    b. How many weeks will it take him to reach his goal?

12. The Algebra 1 website had 186 views during the first week of school and continues to gain 89 hits per week. When it hits 1000 views we will have a Pizza party.
    a. Write an equation/inequality that models the situation.

    b. Will we get to have a pizza party this quarter? (9 weeks in a quarter)

13. Tom works at an aquarium shop on Saturdays. One Saturday, when Tom gets to work, he is asked to clean a 175-gallon reef tank. His first job is to drain the tank. He puts a hose into the tank and starts to siphon. Tom wonders if the tank will finish draining before he leaves work (8 hour shift). He measures the amount of water that is draining and figures the rate is 25 gallons per hour.
    a. Write an equation/inequality that models the situation.

    b. Will the tank be done draining before he leaves work?

Match the vocabulary word with the correct operation or symbol. You may use a letter more than once or not at all.

A. $=$

B. $\geq$

14. Sum _____

15. Quotient _____

16. Is less than _____

C. $\leq$

D. $>$

17. Product _____

18. Half _____

19. Increased by _____

20. Is _____

E. $<$

F. Add

21. Difference _____

22. Less than_____

G. Subtract

23. Minus _____

H. Multiply

I. Divide

Translate the sentence into an equation or inequality.

24. Twice the sum of a number and three is less than fifteen more than three times that same number.

25. Negative sixteen increased by eight times a number is the same as three times the difference between four and twice that number.

26. Eleven less than five times a number is greater than or equal to the quotient of a number and ten.

27. The product of five-sixths and a number is equivalent to negative one times the difference of nine and a number squared.

Literal Equations: solve for the indicated variable.

28. Solve for a.

    i. $\dfrac{4a-b}{c} = d$

    ii. $9a + m - 5b = \dfrac{13b}{6c}$

29. Solve for y.

    i. $10y - 4x = 30$

    ii. $-\dfrac{1}{4}y + 9x = -7$

Simplify.

30. $2 + 6(4 + 2 - 3^2) - 2$

31. $(4 * 60 \div 8 - 7 + 4 - 3)^2 - 7$

32. $-5(12 \div 6 * 4 - 15 + 8)^3 - 11$

33. $\dfrac{7}{12} = \dfrac{x-6}{5}$

34. $\dfrac{3}{5} = \dfrac{2x+17}{25}$

35. $\dfrac{x+2}{6} = \dfrac{x-1}{12}$